

**Table S1** Comparison of baseline characteristics of participants and nonparticipants

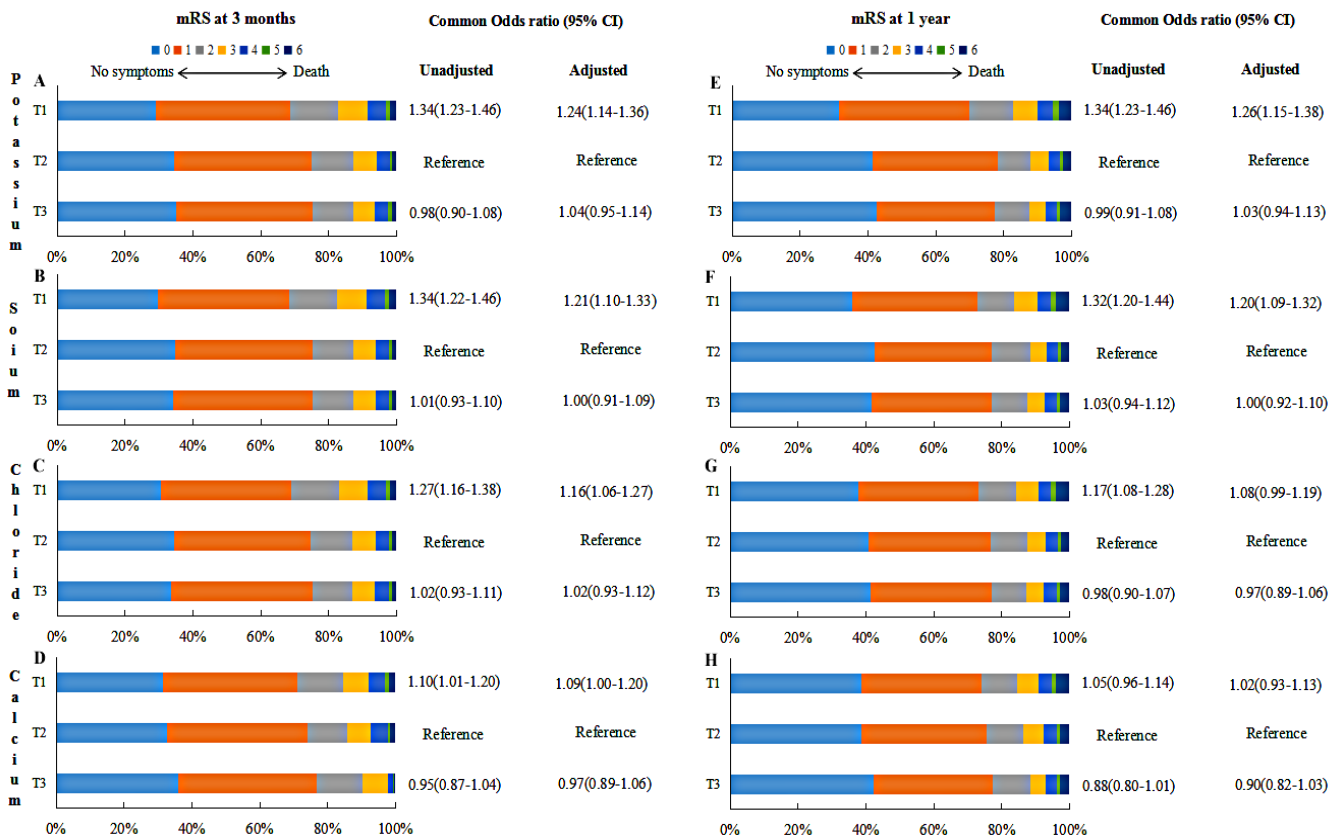
Characteristics	Nonparticipants, N=4867	Participants, N=10299	P value
Age, y	62 (54–70)	63 (54–70)	0.5865
Men, n (%)	3384 (69.53)	6980 (67.77)	0.0300
BMI, kg/m <sup>2</sup>	24.47 (22.72–26.49)	24.49 (22.58–26.57)	0.8171
Medical History, n (%)			
Hypertension	3056 (62.79)	6438 (62.51)	0.7400
Diabetes mellitus	1145 (23.53)	2365 (22.96)	0.4433
Dyslipidemia	322 (6.62)	869 (8.44)	0.0001
Stroke or TIA	1111 (22.83)	2244 (21.79)	0.1502
Atrial fibrillation/flutter	305 (6.27)	714 (6.93)	0.1262
Peripheral vascular disease	44 (0.90)	74 (0.72)	0.2248
Heart failure	25 (3.94)	69 (4.62)	0.4863
Stroke type/Subtype, n (%)			
Ischemic stroke	4571 (93.92)	9575 (92.97)	0.0296
TIA	296 (6.08)	724 (7.03)	
TOAST, n (%)			
Large-artery atherosclerosis	1256 (25.81)	2600 (25.25)	0.018
Cardioembolism	284 (5.84)	633 (6.15)	
Small-vessel occlusion	1079 (22.17)	2086 (20.25)	
Other determined etiology	48 (0.99)	134 (1.30)	
Undetermined etiology	2200 (45.20)	4846 (47.05)	
Current smoker, n (%)	1552 (31.89)	3200 (31.07)	0.4719
Medication in hospital, n (%)			
Cholesterol-lowering agents	4693 (97.20)	9813 (95.97)	0.0002
Antihypertensive agents	2216 (45.90)	4784 (46.79)	0.3077
Hypoglycemic agents	1237 (25.62)	2555 (24.99)	0.4032
Antiplatelet agents	4678 (96.89)	9935 (97.16)	0.3574
Anticoagulant agents	485 (10.05)	1061 (10.38)	0.5324
NIHSS score on admission	3 (1–6)	3 (1–6)	0.0701
Lipid level			
TC, mmol/L	3.89 (3.26–4.63)	4.02 (3.35–4.78)	<0.0001
LDL, mmol/L	2.26 (1.71–2.92)	2.34 (1.74–3.01)	0.0003
HDL, mmol/L	0.92 (0.76–1.10)	0.94 (0.78–1.13)	<0.0001
TG, mmol/L	1.36 (1.03–1.87)	1.37 (1.03–1.87)	0.8430
FBG, mmol/L	5.48 (4.84–6.80)	5.56 (4.90–6.91)	0.0001
eGFR, mL/min/1.73 m <sup>2</sup>	93.47 (82.56–101.96)	92.93 (80.85–101.84)	0.0378
Hs-CRP, mg/L	1.67 (0.81–4.51)	1.84 (0.82–4.83)	0.0126
Potassium, mmol/L	3.90 (3.68–4.15)	3.93 (3.68–4.19)	0.0561
Sodium, mmol/L	140.40 (138.90–142.00)	141.00 (139.00–142.70)	0.0003
Chloride, mmol/L	105.00 (102.30–107.00)	104.00 (101.70–106.10)	<0.0001
Calcium, mmol/L	2.23 (2.16–2.32)	2.25 (2.17–2.34)	0.0625

Continuous variables are expressed as median with interquartile range. Categorical variables are expressed as frequency with percentage. BMI, body mass index; TIA, transient ischemic Attack; TOAST, Trial of Org 10172 in Acute Stroke Treatment; NIHSS, The National Institutes of Health Stroke Scale; TC, total cholesterol; LDL, low-density lipoprotein cholesterol; HDL, high-density lipoprotein cholesterol; TG, triglycerides; FBG, fasting blood glucose; eGFR, estimated glomerular filtration rate; hs-CRP, high sensitivity C-reactive protein.

**Table S2** Baseline characteristics of patients according to functional outcome at 1 year

Characteristics	mRS score <3 (n=8903)	mRS score ≥3 (n=1396)	P value	mRS score <2 (n=7796)	mRS score ≥2 (n=2503)	P value
Age, y	62 (54–69)	68 (60–76)	<0.0001	62 (53–68)	66 (59–75)	<0.0001
Men, n (%)	6136 (68.92)	844 (60.46)	<0.0001	5410 (69.39)	1570 (62.72)	<0.0001
BMI, kg/m <sup>2</sup>	24.51 (22.67–26.57)	24.22 (22.03–26.42)	<0.0001	24.52 (22.76–26.64)	24.22 (22.09–26.35)	<0.0001
Medical History, n (%)						
Hypertension	5501 (61.79)	937 (67.12)	0.0001	4765 (61.12)	1673 (66.84)	<0.0001
Diabetes mellitus	1997 (22.43)	368 (26.36)	0.0012	1681 (21.56)	684 (27.33)	<0.0001
Dyslipidemia	736 (8.27)	133 (9.53)	0.1152	662 (8.49)	207 (8.27)	0.7287
Stroke or TIA	1778 (19.97)	466 (33.38)	<0.0001	1475 (18.92)	769 (30.72)	<0.0001
Atrial fibrillation/flutter	506 (5.68)	208 (14.90)	<0.0001	411 (5.27)	303 (12.11)	<0.0001
Peripheral vascular disease	57 (0.64)	17 (1.22)	0.0175	47 (0.60)	27 (1.08)	0.0142
Heart failure	51 (4.32)	18 (5.75)	0.2845	32 (3.24)	37 (7.31)	0.0004
Stroke type/Subtype, n (%)						
Ischemic stroke	8203 (92.14)	1372 (98.28)	<0.0001	7127 (91.42)	2448 (97.80)	<0.0001
TIA	700 (7.86)	24 (1.72)		669 (8.58)	55 (2.20)	
TOAST, n (%)						
Large-artery atherosclerosis	2099 (23.58)	501 (35.89)	<0.0001	1766 (22.65)	834 (33.32)	<0.0001
Cardioembolism	510 (5.73)	123 (8.81)		434 (5.57)	199 (7.95)	
Small-vessel occlusion	1945 (21.85)	141 (10.10)		1772 (22.73)	314 (12.54)	
Other determined etiology	109 (1.22)	25 (1.79)		93 (1.19)	41 (1.64)	
Undetermined etiology	4240 (47.62)	606 (43.41)		3731 (47.86)	1115 (44.55)	
Current smoker, n (%)	2883 (32.38)	317 (22.71)	<0.0001	2559 (32.82)	641 (25.61)	<0.0001
Medication in hospital, n (%)						
Cholesterol-lowering agents	8483 (95.95)	1330 (96.10)	0.7952	7414 (95.84)	2399 (96.38)	0.2279
Antihypertensive agents	4085 (46.21)	699 (50.51)	0.0029	3543 (45.80)	1241 (49.86)	0.0004
Hypoglycemic agents	2175 (24.60)	380 (27.46)	0.0225	1844 (23.84)	711 (28.57)	<0.0001
Antiplatelet agents	8626 (97.57)	1309 (94.58)	<0.0001	7554 (97.65)	2381 (95.66)	<0.0001
Anticoagulant agents	847 (9.58)	214 (15.46)	<0.0001	700 (9.05)	361 (14.50)	<0.0001
NIHSS score on admission	3 (1–5)	7 (4–11)	<0.0001	3 (1–5)	6 (3–10)	<0.0001
Lipid level						
TC, mmol/L	4.02 (3.35–4.78)	3.97 (3.31–4.8)	0.5598	4.03 (3.35–4.77)	3.97 (3.33–4.8)	0.5047
LDL, mmol/L	2.33 (1.73–3)	2.37 (1.78–3.1)	0.0885	2.33 (1.73–2.99)	2.36 (1.76–3.08)	0.0759
HDL, mmol/L	0.94 (0.78–1.13)	0.97 (0.79–1.15)	0.0514	0.94 (0.78–1.13)	0.94 (0.78–1.13)	0.6636
TG, mmol/L	1.39 (1.04–1.9)	1.25 (0.96–1.69)	<0.0001	1.39 (1.04–1.91)	1.3 (1–1.76)	<0.0001
FBG, mmol/L	5.51 (4.9–6.83)	5.81 (5.05–7.37)	<0.0001	5.5 (4.88–6.77)	5.78 (5.02–7.36)	<0.0001
eGFR, mL/min/1.73 m <sup>2</sup>	93.61 (82.46–102.43)	87.9 (71.7–97.68)	<0.0001	94.06 (82.72–102.55)	89.27 (74.82–98.88)	<0.0001
hs-CRP, mg/L	1.65 (0.79–4.17)	3.93 (1.33–12.39)	<0.0001	1.56 (0.77–3.91)	3.15 (1.17–8.53)	<0.0001
Potassium, mmol/L	3.94 (3.70–4.19)	3.87 (3.60–4.17)	<0.0001	3.94 (3.70–4.20)	3.89 (3.61–4.17)	<0.0001
Sodium, mmol/L	141.00 (139.00–142.80)	140.20 (138.20–142.50)	<0.0001	141.00 (139.00–142.80)	140.60 (138.50–142.50)	<0.0001
Chloride, mmol/L	104.0 (101.9–106.1)	103.8 (101.0–106.0)	0.0003	104.00 (101.90–106.10)	103.90 (101.00–106.10)	<0.0001
Calcium, mmol/L	2.25 (2.17–2.34)	2.23 (2.14–2.32)	<0.0001	2.25 (2.17–2.34)	2.24 (2.16–2.33)	0.0001

Continuous variables are expressed as median with interquartile range. Categorical variables are expressed as frequency with percentage. mRS, modified Rankin Scale; BMI, body mass index; TIA, transient ischemic Attack; TOAST, Trial of Org 10172 in Acute Stroke Treatment; NIHSS, The National Institutes of Health Stroke Scale; TC, total cholesterol; LDL, low-density lipoprotein cholesterol; HDL, high-density lipoprotein cholesterol; TG, triglycerides; FBG, fasting blood glucose; eGFR, estimated glomerular filtration rate; hs-CRP, high sensitivity C-reactive protein.



**Figure S1** Modified Rankin Scale scores stratified by electrolyte levels. The figure is shown the distribution of scores on the modified Rankin scale. Scores range from 0 to 6, with 0 indicating no symptoms, 1 no clinically significant disability, 2 slight disability, 3 moderate disability, 4 moderately severe disability, 5 severe disability and 6 death. In the multivariate regression model, we adjusted for age, gender, body mass index, history of hypertension, diabetes mellitus, dyslipidemia, stroke or TIA, atrial fibrillation/flutter, peripheral vascular disease, heart failure, stroke type, TOAST, current smoke, cholesterol-lowering agents, antihypertensive agents, hypoglycemic agents, antiplatelet agents, anticoagulant agents, NIHSS, total cholesterol, high-density cholesterol lipoprotein, fasting blood glucose, estimated glomerular filtration rate, and high sensitivity C-reactive protein. mRS, modified Rankin scale; CI, confidence interval.

**Table S3** Association of all-cause death and poor functional outcomes with serum potassium

Outcomes	Serum potassium*, mmom/L		
	Hypokalemia	Normokalemia	Hyperkalemia
At 3 months			
Death	25 (2.00)	123 (1.41)	10 (3.17)
Unadjusted	1.41 (0.91–2.21)	Reference	2.35 (1.21–4.59)
Adjusted †	1.42 (0.89–2.25)	Reference	1.94 (0.97–3.87)
mRS 3–6	246 (19.71)	1177 (13.47)	54 (17.14)
Unadjusted	1.48 (1.26–1.74)	Reference	1.32 (0.97–1.81)
Adjusted †	1.37 (1.15–1.63)	Reference	1.26 (0.90–1.77)
mRS 2–6	423 (33.89)	2271 (26.00)	93 (29.52)
Unadjusted	1.34 (1.17–1.53)	Reference	1.19 (0.92–1.54)
Adjusted †	1.23 (1.06–1.43)	Reference	1.15 (0.86–1.53)
At 1 year			
Death	56 (4.49)	250 (2.86)	19 (6.03)
Unadjusted	1.53 (1.13–2.06)	Reference	2.11 (1.30–3.42)
Adjusted †	1.58 (1.16–2.15)	Reference	1.87 (1.14–3.07)
mRS 3–6	236 (18.91)	1105 (12.65)	55 (17.46)
Unadjusted	1.53 (1.30–1.80)	Reference	1.52 (1.12–2.08)
Adjusted †	1.44 (1.21–1.72)	Reference	1.46 (1.04–2.04)
mRS 2–6	398 (31.89)	2015 (23.07)	90 (28.57)
Unadjusted	1.47 (1.28–1.68)	Reference	1.34 (1.03–1.74)
Adjusted †	1.39 (1.19–1.61)	Reference	1.28 (0.96–1.70)

\*Hypokalemia: potassium less than 3.5 mmol/L; Normokalemia: potassium from 3.5 to 4.7 mmol/L; Hyperkalemia: potassium from more than 4.7 mmol/L. †Adjusted for age, gender, body mass index, history of hypertension, diabetes mellitus, dyslipidemia, stroke or TIA, atrial fibrillation/flutter, peripheral vascular disease, heart failure, stroke type, TOAST, current smoke, cholesterol-lowering agents, antihypertensive agents, hypoglycemic agents, antiplatelet agents, anticoagulant agents, NIHSS, total cholesterol, high-density cholesterol lipoprotein, fasting blood glucose, estimated glomerular filtration rate, and high sensitivity C-reactive protein. mRS, modified Rankin Scale.

**Table S4** Association of all-cause death and poor functional outcomes with serum sodium

Outcomes	Serum sodium*, mmom/L		
	Hyponatremia	Normonatremia	Hypernatremia
At 3 months			
Death	17 (5.21)	130 (1.38)	11 (2.11)
Unadjusted	3.58 (2.06–6.23)	Reference	1.90 (0.98–3.69)
Adjusted †	1.99 (1.08–3.69)	Reference	1.74 (0.88–3.43)
mRS 3–6	82 (25.15)	1321 (13.98)	74 (14.20)
Unadjusted	2.03 (1.54–2.68)	Reference	1.02 (0.78–1.34)
Adjusted †	1.66 (1.22–2.25)	Reference	1.03 (0.77–1.37)
mRS 2–6	135 (41.41)	2510 (26.56)	142 (27.26)
Unadjusted	1.77 (1.39–2.26)	Reference	1.00 (0.80–1.24)
Adjusted †	1.46 (1.11–1.91)	Reference	1.00 (0.79–1.26)
At 1 year			
Death	29 (8.90)	279 (2.95)	17 (3.26)
Unadjusted	2.98 (1.97–4.51)	Reference	1.11 (0.66–1.87)
Adjusted †	2.02 (1.30–3.15)	Reference	0.98 (0.58–1.67)
mRS 3–6	76 (23.31)	1252 (13.25)	68 (13.05)
Unadjusted	1.91 (1.44–2.54)	Reference	0.95 (0.71–1.25)
Adjusted †	1.53 (1.12–2.09)	Reference	0.90 (0.67–1.21)
mRS 2–6	117 (35.89)	2259 (23.90)	127 (24.38)
Unadjusted	1.66 (1.30–2.13)	Reference	0.98 (0.79–1.23)
Adjusted †	1.33 (1.01–1.74)	Reference	0.96 (0.75–1.21)

\*Hyponatremia: sodium less than 135 mmol/L; Normonatremia: sodium from 135 to 145 mmol/L; Hypernatremia: sodium from more than 145 mmol/L. †Adjusted for age, gender, body mass index, history of hypertension, diabetes mellitus, dyslipidemia, stroke or TIA, atrial fibrillation/flutter, peripheral vascular disease, heart failure, stroke type, TOAST, current smoke, cholesterol-lowering agents, antihypertensive agents, hypoglycemic agents, antiplatelet agents, anticoagulant agents, NIHSS, total cholesterol, high-density cholesterol lipoprotein, fasting blood glucose, estimated glomerular filtration rate, and high sensitivity C-reactive protein. mRS, modified Rankin Scale.

**Table S5** Association of all-cause death and poor functional outcomes with serum chloride

Outcomes	Serum chloride*, mmom/L		
	Hypochloremia	Normochloremia	Hyperchloremia
At 3 months			
Death	21 (3.98)	122 (1.32)	15 (2.76)
Unadjusted	3.03 (1.84–4.98)	Reference	1.66 (0.94–2.94)
Adjusted †	2.27 (1.31–3.92)	Reference	1.32 (0.73–2.41)
mRS 3–6	115 (21.78)	1288 (13.96)	74 (13.60)
Unadjusted	1.76 (1.40–2.22)	Reference	0.84 (0.64–1.10)
Adjusted †	1.59 (1.24–2.04)	Reference	0.80 (0.60–1.06)
mRS 2–6	189 (35.80)	2459 (26.65)	139 (25.55)
Unadjusted	1.50 (1.23–1.83)	Reference	0.89 (0.72–1.10)
Adjusted †	1.31 (1.05–1.63)	Reference	0.89 (0.71–1.12)
At 1 year			
Death	35 (6.63)	264 (2.86)	26 (4.78)
Unadjusted	2.25 (1.55–3.25)	Reference	1.51 (0.98–2.32)
Adjusted †	1.86 (1.26–2.77)	Reference	1.36 (0.87–2.13)
mRS 3–6	110 (20.83)	1208 (13.09)	78 (14.34)
Unadjusted	1.74 (1.38–2.19)	Reference	1.00 (0.77–1.30)
Adjusted †	1.58 (1.23–2.04)	Reference	0.92 (0.69–1.22)
mRS 2–6	166 (31.44)	2205 (23.90)	132 (24.26)
Unadjusted	1.41 (1.15–1.73)	Reference	1.00 (0.81–1.25)
Adjusted †	1.24 (1.00–1.55)	Reference	0.97 (0.77–1.22)

\*Hypochloremia: chloride less than 98 mmol/L; Normochloremia: chloride from 98 to 109 mmol/L; Hyperchloremia: chloride from more than 109 mmol/L. †Adjusted for age, gender, body mass index, history of hypertension, diabetes mellitus, dyslipidemia, stroke or TIA, atrial fibrillation/flutter, peripheral vascular disease, heart failure, stroke type, TOAST, current smoke, cholesterol-lowering agents, antihypertensive agents, hypoglycemic agents, antiplatelet agents, anticoagulant agents, NIHSS, total cholesterol, high-density cholesterol lipoprotein, fasting blood glucose, estimated glomerular filtration rate, and high sensitivity C-reactive protein. mRS, modified Rankin Scale.

**Table S6** Association of all-cause death and poor functional outcomes with serum calcium

Outcomes	Serum calcium*, mmom/L		
	Hypocalcemia	Normocalcemia	Hypercalcemia
<b>At 3 months</b>			
Death	88 (1.76)	70 (1.36)	0 (0.00)
Unadjusted	1.22 (0.86–1.72)	Reference	–
Adjusted †	1.05 (0.73–1.50)	Reference	–
mRS 3–6	746 (14.92)	713 (13.83)	18 (12.77)
Unadjusted	1.03 (0.91–1.17)	Reference	1.05 (0.62–1.77)
Adjusted †	0.96 (0.84–1.09)	Reference	0.99 (0.57–1.71)
mRS 2–6	1412 (28.23)	1339 (25.96)	36 (25.53)
Unadjusted	1.10 (1.00–1.22)	Reference	1.10 (0.73–1.66)
Adjusted †	1.06 (0.95–1.18)	Reference	0.96 (0.62–1.49)
<b>At 1 year</b>			
Death	174 (3.48)	145 (2.81)	6 (4.26)
Unadjusted	1.17 (0.92–1.49)	Reference	1.43 (0.62–3.31)
Adjusted †	1.05 (0.82–1.35)	Reference	1.64 (0.70–3.81)
mRS 3–6	739 (14.78)	642 (12.45)	15 (10.64)
Unadjusted	1.18 (1.04–1.34)	Reference	0.87 (0.50–1.52)
Adjusted †	1.09 (0.95–1.25)	Reference	0.84 (0.47–1.50)
mRS 2–6	1276 (25.51)	1199 (23.25)	28 (19.86)
Unadjusted	1.10 (0.99–1.22)	Reference	0.86 (0.56–1.33)
Adjusted †	1.03 (0.92–1.15)	Reference	0.79 (0.50–1.26)

\*Hypocalcemia: calcium less than 2.25 mmol/L; Normocalcemia: calcium from 2.25 to 2.58 mmol/L; Hypercalcemia: calcium from more than 2.58 mmol/L. †Adjusted for age, gender, body mass index, history of hypertension, diabetes mellitus, dyslipidemia, stroke or TIA, atrial fibrillation/flutter, peripheral vascular disease, heart failure, stroke type, TOAST, current smoke, cholesterol-lowering agents, antihypertensive agents, hypoglycemic agents, antiplatelet agents, anticoagulant agents, NIHSS, total cholesterol, high-density cholesterol lipoprotein, fasting blood glucose, estimated glomerular filtration rate, and high sensitivity C-reactive protein. mRS, modified Rankin Scale.

**Table S7** Adjusted odds ratio (95% confidence interval) for poor functional outcome (mRS score 2–6) according to tertiles of serum electrolyte indicators

Electrolyte indicator	Tertiles	mRS score 2–6 at 3 months			mRS score 2–6 at 1 year		
		Events, n (%)	Unadjusted	Adjusted*	Events, n (%)	Unadjusted	Adjusted*
Potassium	T1	1075 (31.38)	1.32 (1.18–1.48)	1.27 (1.12–1.43)	976 (28.49)	1.40 (1.25–1.57)	1.36 (1.20–1.54)
	T2	838 (24.93)	Reference	Reference	733 (21.80)	Reference	Reference
	T3	874 (24.89)	1.06 (0.95–1.19)	1.09 (0.96–1.24)	794 (22.61)	1.10 (0.98–1.24)	1.12 (0.99–1.28)
Sodium	T1	1082 (31.58)	1.35 (1.20–1.52)	1.23 (1.09–1.40)	929 (27.12)	1.21 (1.07–1.36)	1.12 (0.98–1.27)
	T2	762 (24.70)	Reference	Reference	710 (23.01)	Reference	Reference
	T3	943 (24.89)	0.99 (0.88–1.12)	1.01 (0.89–1.14)	864 (22.81)	1.01 (0.90–1.14)	1.02 (0.90–1.17)
Chloride	T1	1063 (31.10)	1.31 (1.17–1.47)	1.22 (1.08–1.38)	916 (26.80)	1.22 (1.08–1.37)	1.14 (1.00–1.30)
	T2	869 (25.42)	Reference	Reference	793 (23.19)	Reference	Reference
	T3	855 (24.70)	0.91 (0.81–1.02)	0.94 (0.82–1.06)	794 (22.93)	0.94 (0.83–1.06)	0.95 (0.83–1.08)
Calcium	T1	985 (28.97)	1.15 (1.02–1.29)	1.14 (1.00–1.30)	883 (25.97)	1.06 (0.95–1.20)	1.02 (0.90–1.16)
	T2	907 (25.90)	Reference	Reference	853 (24.36)	Reference	Reference
	T3	895 (26.35)	1.04 (0.93–1.17)	1.11 (0.98–1.26)	767 (22.58)	0.91 (0.81–1.03)	0.97 (0.85–1.10)

\*Adjusted for age, gender, body mass index, history of hypertension, diabetes mellitus, dyslipidemia, stroke or TIA, atrial fibrillation/flutter, peripheral vascular disease, heart failure, stroke type, TOAST, current smoke, cholesterol-lowering agents, antihypertensive agents, hypoglycemic agents, antiplatelet agents, anticoagulant agents, NIHSS, total cholesterol, high-density cholesterol lipoprotein, fasting blood glucose, estimated glomerular filtration rate, and high sensitivity C-reactive protein. mRS, modified Rankin Scale.